



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**Work Order ID 64394**

Friday, December 03, 2010 1:49:48 PM

Page 2

Item ID: D3269-2

Accept

Revision ID:

Item Name: Bubble Window, RH

Start Date: 12/3/2010 Start Qty: 3.00

Required Date: 12/17/2010 Req'd Qty: 3.00

Reference:

Cust Item ID:

Customer:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

130

QC2- Inspect parts off machine FAI/FAIB

0.00



QC

Memo

0.00

Quality Control

1) Check Surface finish for undesired marks, voids, dimples etc. 2) Check depth of bubble to ensure conformity to drawing tolerances.

(x3)

Jh  
10/12/13

140

QC8- Inspect parts - second check

0.00



QC

Memo

0.00

Quality Control

(x3)

JB  
10/12/13

150

HAND FINISHING THERMOFORMING

0.00



Thermoform

Memo

0.00

Thermoforming Machine

1) Trim off excess flange material 2) Buff out any light scratches or blemishes 3) Etch part number and batch number

(x3)

JB  
10/12/13

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**NOTE:** Date & initial all entries

**Work Order ID 64394**

Friday, December 03, 2010 1:49:48 PM



Page 3

Item ID: D3269-2

Accept



Setup Start



Revision ID:

Stop



Item Name: Bubble Window, RH

Start Date: 12/3/2010 Start Qty: 3.00



Cust Item ID:

Required Date: 12/17/2010 Req'd Qty: 3.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

160

QC5- Inspect part completeness to step on W/O

0.00

5 w/12/20



QC

Memo

0.00

Quality Control

1) Visually inspect for clarity, and proper formation.

23

170

Identify as per dwg &amp; Stock Location: \_\_\_\_\_

0.00

Packaging



Packaging

Memo

PPP 64393

0.00

Packaging

C 10/12/20 (3)

180

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

10/12/20

MF  
10-12-20

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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**NOTE:** Date & initial all entries

# Picklist Print

Friday, December 03, 2010 1:51:04 PM

Page 1

Work Order ID: 64394

Parent Item: D3269-2

Parent Item Name: Bubble Window, H



Start Date: 12/3/2010

Required Date: 12/17/2010

Start Qty: 3.00

Required Qty: 3.00

Comments: IPP A 05.03.22 New issue KJ/JLM  
IPP B 05.05.09 Added engraving EC  
IPP Rev:06-07-03 As per Rev C JLM  
IPP C 07.11.06 Thermoform in-house DL verified by:EC  
IPP Rev: D 08.07.24 As per New Tool DL

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MACRYLICS.177		Purchased	No				sf	185.3922	10	30			



0.177" PLEXIGLAS G CLEAR CAST ACRYLIC SHEET

Location

Loc Qty

Loc Code

therm

185.3922

107291

24

111315

54

115234

107.3922

34.375 sg H.

DL  
10/12/13

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



DART AEROSPACE LTD		Work Order:	64394
Description: Bubble Window, RH (R44)		Part Number:	D3269-2(4)
Inspection Dwg: D3269	Rev: E	Page 1 of 1	

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

#### THERMOFORMING SECTION

Description	Accept	Reject	Method of Inspection	Comments
Depth of bubble within tolerances	✓			
Shape Definition	✓			
Material imperfections such as bumps, cracks, voids, scratching	✓			

Measured by: BB Date: 10/12/15

#### TRIMMING SECTION

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
10.0	+/-0.25	10.0	✓			
6.2	0.036 Min	.073	✓			
3.8	0.057 Min	.116	✓			

Measured by: BB Date: 10/12/15

Audited by: Wh Date: 10/12/15

Prototype Approval: \_\_\_\_\_ Date: \_\_\_\_\_

Rev	Date	Change	Revised by	Approved
A	08.11.27	New Issue	KJ/DL	
B	09.10.16	Tolerances revised per Dwg Rev E	KJ	

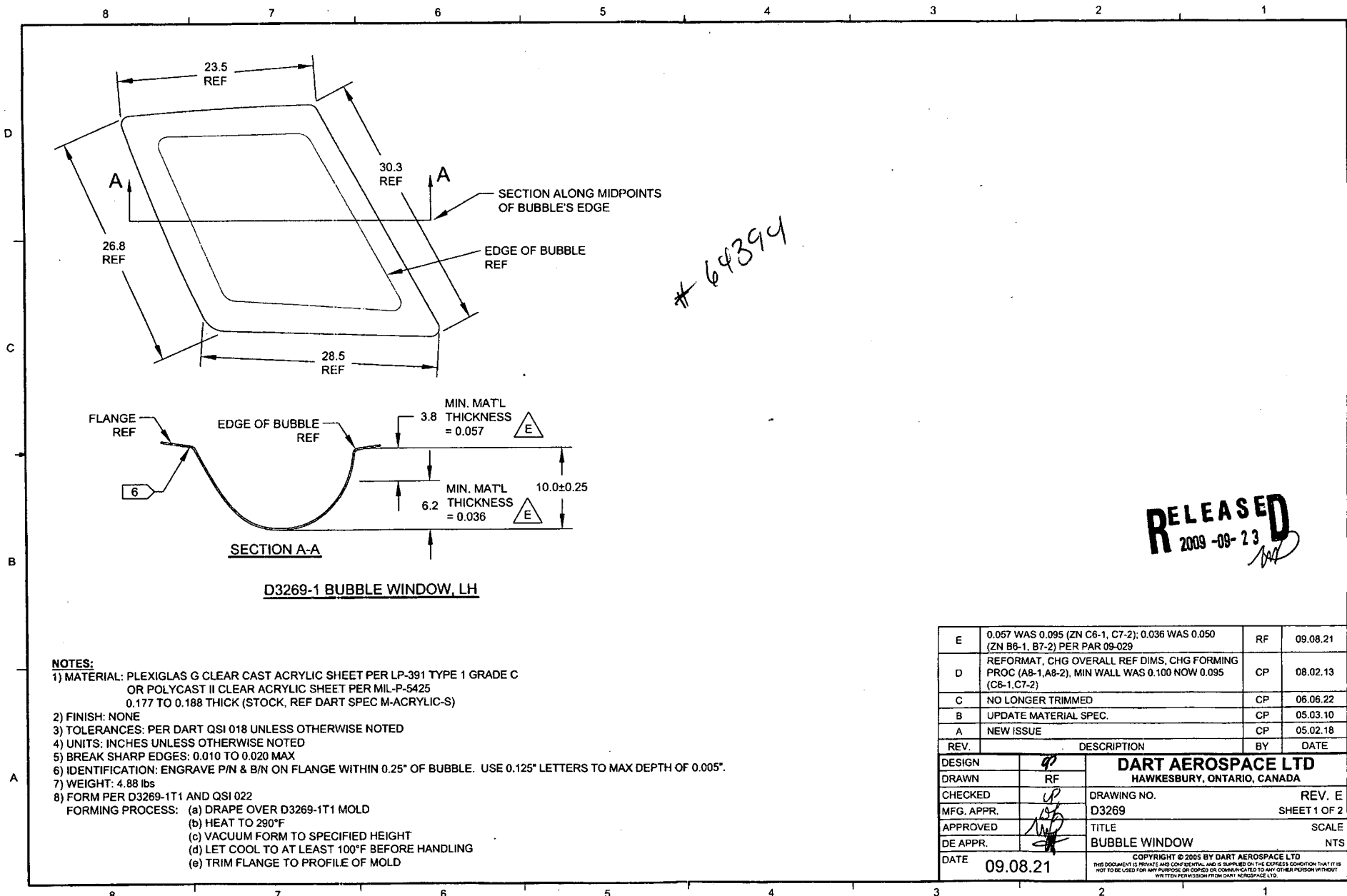
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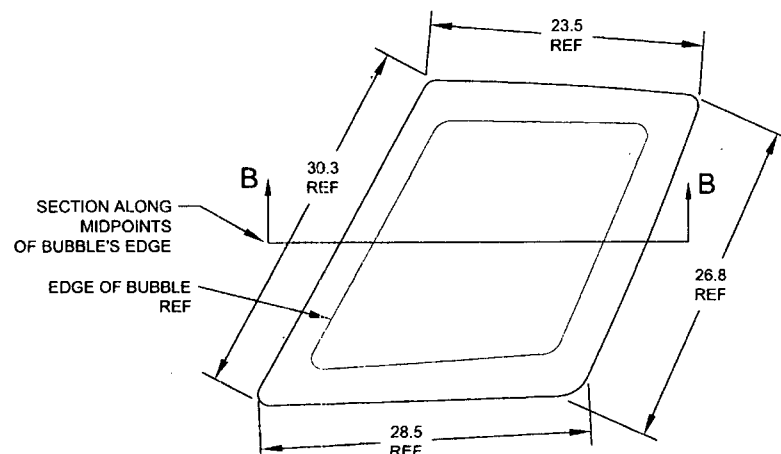


**NOTES:**

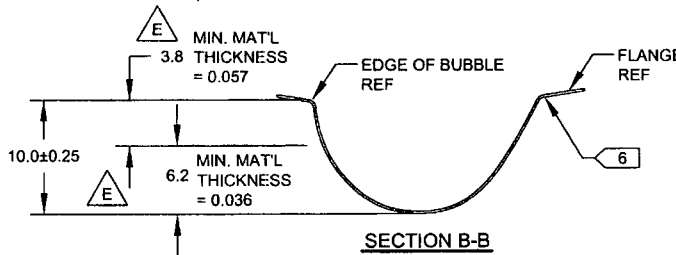
- 1) MATERIAL: PLEXIGLAS G CLEAR CAST ACRYLIC SHEET PER LP-391 TYPE 1 GRADE C OR POLYCAST II CLEAR ACRYLIC SHEET PER MIL-P-5425 0.177 TO 0.188 THICK (STOCK, REF DART SPEC M-ACRYLIC-S)
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.010 TO 0.020 MAX
- 6) IDENTIFICATION: ENGRAVE P/N & B/N ON FLANGE WITHIN 0.25" OF BUBBLE. USE 0.125" LETTERS TO MAX DEPTH OF 0.005".
- 7) WEIGHT: 4.88 lbs
- 8) FORM PER D3269-1T1 AND QSI 022  
FORMING PROCESS: (a) DRAPE OVER D3269-1T1 MOLD  
(b) HEAT TO 290°F  
(c) VACUUM FORM TO SPECIFIED HEIGHT  
(d) LET COOL TO AT LEAST 100°F BEFORE HANDLING  
(e) TRIM FLANGE TO PROFILE OF MOLD

E	0.057 WAS 0.095 (ZN C6-1, C7-2); 0.036 WAS 0.050 (ZN B6-1, B7-2) PER PAR 09-029	RF	09.08.21
D	REFORMAT, CHG OVERALL REF DIMS, CHG FORMING PROC (A8-1, A8-2), MIN WALL WAS 0.100 NOW 0.095 (C6-1, C7-2)	CP	08.02.13
C	NO LONGER TRIMMED	CP	06.06.22
B	UPDATE MATERIAL SPEC.	CP	05.03.10
A	NEW ISSUE	CP	05.02.18
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	RF	DRAWING NO.	REV. E
MFG. APPR.	RF	D3269	SHEET 1 OF 2
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	BUBBLE WINDOW	NTS
DATE	09.08.21	<small>COPYRIGHT © 2005 BY DART AEROSPACE LTD  THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

8 7 6 5 4 3 2 1



#64394



SECTION B-B

D3269-2 BUBBLE WINDOW, RH

NOTES

- 1) MATERIAL: PLEXIGLAS G CLEAR CAST ACRYLIC SHEET PER LP-391 TYPE 1 GRADE C OR POLYCAST II CLEAR ACRYLIC SHEET PER MIL-P-5425 0.177 TO 0.188 THICK (STOCK, REF DART SPEC M-ACRYLIC-S)
- 2) FINISH: NONE
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- 5) BREAK SHARP EDGES: 0.010 TO 0.020 MAX
- 6) IDENTIFICATION: ENGRAVE P/N & B/N ON FLANGE WITHIN 0.25" OF BUBBLE. USE 0.125" LETTERS TO MAX DEPTH OF 0.005".
- 7) WEIGHT: 4.88 lbs
- 8) FORM PER D3269-2T1 AND QSI 022  
FORMING PROCESS: (a) DRAPE OVER D3269-2T1 MOLD  
(b) HEAT TO 290°F  
(c) VACUUM FORM TO SPECIFIED HEIGHT  
(d) LET COOL TO AT LEAST 100°F BEFORE HANDLING  
(e) TRIM FLANGE TO PROFILE OF MOLD

RELEASED  
2009-09-23

DESIGN	90	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	UP	DRAWING NO.	REV. E
MFG. APPR.		D3269	SHEET 2 OF 2
APPROVED	AW	TITLE	SCALE
DE APPR.		BUBBLE WINDOW	NTS
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8 7 6 5 4 3 2 1